The Mechanism of Stress-Corrosion Cracking in the Brass-Ammonia System

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Abstract

The effect of corrosive environments, compositions of alloying elements and degree of pre-strain on the stress-corrosion cracking of the brass-ammonia system, has been investigated and the mechanism of intergranular cracking and of the transition from intergranular to transgranular cracking have been discussed.

Intergranular cracking arises from the formation of thick and large cuprous oxide grains over slip steps and the resulting locking of the movement of dislocations.

The transition from intergranular to transgranular cracking depends on the mechanical properties of the surface film produced in a corrosive environment.

The mechanism of the stress-corrosion cracking has been explained on the basis of the film theory.

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